What is Claimed is:

- [c1] A method of determining a location of an I DDQ defect within an area of an integrated circuit having a substrate and a plurality of terminals arranged on a surface of said substrate, said area provided with and bounded by corresponding ones of said plurality of terminals, the method comprising the steps of:

 activating an I DDQ defect to generate I DDQ defect current within said integrated circuit;

 measuring amounts of said I DDQ defect current at said corresponding terminals bounding said area; and determining the location of the I DDQ defect based on said amounts of said I DDQ defect current measured at said corresponding terminals.
- [c2] The method of claim 1, wherein the determining step further comprising the steps of:
 dividing said area into a plurality of subsections, each subsection provided with a corresponding one of said terminals bounding said area; and determining which subsection includes said I DDQ defect based on said amounts of said I DDQ defect current measured at said corresponding terminals.
- [c3] The method of claim 2, further comprising steps of: selecting one of said subsections determined to include said I DDQ defect; dividing said selected subsection into a plurality of sub-subsections; and determining which sub-subsection includes said I DDQ defect based on a ratio between an amount of I DDQ defect current forwarded toward one of said terminals provided for said selected subsection and an amount of a sum of said I DDQ defect current measured at said terminals bounding said area.

- [c4] The method of claim 3, wherein said plurality of subsections are arranged in a matrix of X rows and Y columns within said area, and said plurality of sub-sections are arranged in a matrix of M rows and N columns, wherein said X, Y, M and N are natural numbers.
- The method of claim 4, wherein said step of determining which sub-[c5] section includes said I $_{\mbox{\scriptsize DDQ}}$ defect comprising the steps of: determining which row of said selected subsection includes said I $\overline{\text{DDQ}}$ defect based on a ratio between (a) an amount of a sum of said I $\overline{\text{DDO}}$ defect current measured at said terminal provided for said selected subsection and at a first neighboring terminal provided for one of said subsections arranged on a same row with said selected subsection and (b) said amount of said sum of said I $_{\mbox{\scriptsize DDQ}}$ defect current measured at said terminals bounding said selected area; and determining which column of said selected subsection includes said I $_{
 m DDO}$ defect based on a ratio between (a) an amount of a sum of said I $\overline{\text{DDQ}}$ defect current measured at said terminal provided for said selected subsection and at a second neighboring terminal provided for one of said subsections arranged on a same column with said selected subsection and (b) said amount of said sum of said I $\overline{\text{DDQ}}$ defect current measured at said terminals bounding said selected area.
 - [c6] A method for testing an integrated circuit substrate having a plurality of terminals on a surface thereof, the method comprising the steps of:

 dividing said surface into a plurality of areas;

 activating an I DDQ defect to generate I DDQ defect current within said integrated circuit; and measuring an amount of said I DDQ defect current generated within each area.
 - [c7] The method of claim 6, wherein each area has at least one terminal corresponding thereto.

- - [c8] The method of claim 6, further comprising the step of determining whether each area includes said I $_{
 m DDQ}$ defect based on said amount of said I $_{
 m DDO}$ defect current measured at said at least one terminal.
 - [c9] The method of claim 8, wherein said determining step includes the step of comparing the I DDQ defect current measured at each area with a preselected value.
 - [c10] The method of claim 8, further comprising the step of determining a location of said I _{DDO} defect within said integrated circuit substrate.
 - The method of claim 10, wherein said step of determining the location of said I DDQ defect comprises the steps of:
 selecting one of said areas determined to include said I DDQ defect;
 dividing said selected area into a plurality of subsections, each subsection provided with a corresponding one of said terminals bounding said selected area; and determining which subsection includes said I DDQ defect based on said amount of the I DDQ defect current measured at said terminals bounding said selected area.
 - [c12] The method of claim 11, further comprising the steps of: selecting one of said subsections determined to include said I DDQ defect; dividing said selected subsection into a plurality of sub-subsections; and determining which sub-subsection includes said I DDQ defect based on the ratio between (a) an amount of said I DDQ defect current forwarded to said terminal provided for said selected subsection and (b) an amount of a sum of said I DDQ defect current measured at said terminals bounding said selected area.

- [c13] The method of claim 12, wherein said plurality of subsections are arranged in a matrix of X rows and Y columns within said selected area, and said plurality of sub-subsections are arranged in a matrix of M rows and N columns within said selected subsection, wherein X, Y, M and N are natural numbers.
- The method of claim 13, wherein said step of determining which sub-[c14]subsection includes said I $_{\mbox{\scriptsize DDO}}$ defect comprises the steps of: determining which row of said selected subsection includes said I $\overline{\text{DDQ}}$ defect based on a ratio between (a) an amount of a sum of said I DDO defect current measured at said terminal provided for said selected subsection and at a first neighboring terminal provided for one of said subsections arranged on a same row with said selected subsection and (b) said amount of said sum of said I $_{
 m DDQ}$ defect current measured at said terminals bounding said selected area; and determining which column of said selected subsection includes said I $_{\mbox{\scriptsize DDO}}$ defect based on a ratio between (a) an amount of a sum of said I $\overline{\text{DDQ}}$ defect current measured at said terminal provided for said selected subsection and at a second neighboring terminal provided for one of said subsections arranged on a same column with said selected subsection and (b) said amount of said sum of said I $\overline{\text{DDQ}}$ defect current measured at said terminals bounding said selected area.
 - [c15] A method for testing an integrated circuit substrate having a plurality of terminals on a surface thereof, the method comprising the steps of:

 dividing said surface into a plurality of areas, each area provided with at least one of said plurality of terminals;

 activating an I DDQ defect to generate I DDQ defect current within said integrated circuit; and measuring an amount of said I DDQ defect current generated within each area;

 creating an I DDQ current map of said integrated device based on said amounts of said I DDQ defect current measured at said plurality of

terminals;

determining whether each area includes said I $_{
m DDQ}$ defect based on said I $_{
m DDQ}$ current map; and determining a location of said I $_{
m DDQ}$ defect within said integrated circuit substrate based on said I $_{
m DDQ}$ current map.

- [c16] The method of claim 15, further comprising the step of isolating said I DDQ defect within said integrated circuit substrate.
- [c17] The method of claim 15, wherein said testing method is performed on a plurality of integrated circuit substrates to create a plurality of I DDQ current maps.
- [c18] The method of claim 17, further comprising step of determining an I $_{
 m DDQ}$ defect candidate area among said plurality of areas based on said plurality of I $_{
 m DDQ}$ current maps.
- [c19] A method for diagnosing a location of an I DDQ defect in an integrated circuit substrate having a plurality of terminals on a surface thereof, the method comprising the steps of:

 dividing said surface into a plurality of areas, each area being provided with at least one of said plurality of terminals;

 applying a plurality of test patterns to said integrated circuit substrate, each test pattern placing said integrated circuit into a different electrical state;

measuring an amount of current generated in each area of said integrated circuit substrate during each test pattern applied thereto; determining which of said plurality of test patterns activate the I DDQ defect and which of said plurality do not activate the I DDQ defect based on the measured amount of the current generated in each area; and using the determination result for said test patterns as data input to a diagnostic tool capable of modeling various I DDQ defects and comparing a predicted activation behavior to said determination results.

[c20] An apparatus for testing an integrated circuit substrate, said integrated circuit being divided into a plurality of areas, comprising:

an activation unit forming electrical contact with said integrated circuit substrate to activate an I DDQ defect to generate I DDQ defect current within said integrated circuit substrate;

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a measurement unit forming electrical contact with said integrated circuit to measure an amount of said I $_{\mbox{DDQ}}$ defect current generated within each area; and

a control unit connected to said activation unit and said measurement unit and determining whether each area includes said I $_{DDQ}$ defect based on the amounts of said I $_{DDQ}$ defect current measured by said measurement unit.

[c21] The apparatus for determining a location of an I DDQ defect in an area of an integrated circuit substrate having a plurality of terminals on a surface thereof, said area divided into a plurality of subsections, each subsection provided with at least one of said terminals, said apparatus comprising: an activation unit forming electrical contact with said integrated circuit substrate for activating the I DDQ defect to generate an I DDQ defect current on said area;

a measurement unit forming electrical contact with said plurality of terminals to measure amounts of said I $_{\mbox{DDQ}}$ defect current at said plurality of terminals; and

a control unit connected to said activation unit and said measurement unit and determining which subsection includes said I $_{\mbox{DDQ}}$ defect based on said amounts of I $_{\mbox{DDQ}}$ defect current at said plurality of terminals measured by said measurement unit.

[c22] The apparatus of claim 21, wherein said control unit further determines which sub-subsection includes said I DDQ defect based on said amounts of I DDQ defect current measured at said plurality of terminals, said subsubsection being one of a plurality of sub-subsections formed by dividing

the subsection determined to include said I $\overline{\text{DDQ}}$ defect.

- [c23] The apparatus of claim 22, wherein said control unit determines which sub-subsection includes said I defect based on a ratio between (a) an amount of I DDQ defect current forwarded toward one of said terminals provided for said subsection determined to include said I DDQ defect and (b) an amount of a sum of said I DDQ defect current measured at said plurality of terminals provided to said area.
- [c24] The apparatus of claim 23, wherein said area is divided by said apparatus into said plurality of subsections and said plurality of sub-subsections such that said subsections are arranged in a matrix of X rows and Y columns within said area and said sub-subsections are arranged in a matrix of M rows and N columns with said subsection, wherein said X, Y, M and N are natural numbers.
- The apparatus of claim 24, wherein said control unit further determines: [c25](a) which row of said subsection determined to include said I $_{\mbox{\scriptsize DDQ}}$ defect includes said I $_{\mbox{\scriptsize DDQ}}$ defect based on a ratio between (i) an amount of a sum of said I $\overline{\mathrm{DDQ}}$ defect current measured at said terminal provided for said subsection determined to include said I $_{\mbox{\scriptsize DDQ}}$ defect and at a first neighboring terminal provided for one of said subsections arranged on a same row with said subsection determined to include said I $_{\mbox{\scriptsize DDQ}}$ defect and (ii) said amount of said sum of said I DDQ defect current measured at said terminals provided for said area; and (b) which column of said subsection determined to include said I $_{\mbox{\scriptsize DDQ}}$ defect based on a ratio between (i) an amount of a sum of said I DDQ defect current measured at said terminal provided for said subsection determined to include said I DDQ defect and at a second neighboring terminals provided for one of said subsections arranged on a same column with said subsection determined to include said I $\overline{\text{DDQ}}$ defect and (ii) said amount of said sum of said I $_{\mbox{\scriptsize DDQ}}$ defect current measured at said terminals provided for said area.